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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,429

08/26/2003

Yosuke Inomata

81872.0050

4541

26021 7590 09/10/2008
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EXAMINER

OLSEN, ALLAN W

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

09/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/648,429	Applicant(s) INOMATA ET AL.	
	Examiner Allan Olsen	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8-10, 15 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 21-29 and 32 is/are allowed.
- 6) ☒ Claim(s) 8-10, 15, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 1, 8 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/30/06; 9/1/06; 8/15/07; 10/10/07; 1/18/08; 7/10/08;</u> | 6) <input type="checkbox"/> Other: _____ |

7/28/08

DETAILED ACTION

Claim Objections

Claims 1, 8 and 15 are objected to because of the following informalities: Each of these claims concludes with the phrase, "as an etching mask as an etching mask". Appropriate correction is required is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-10, 15, 30 and 31 are rejected under 35 U.S.C. 103(a) as being obvious over JP 2003- 17725 of Inomata et al. (hereinafter, Inomata).

Inomata teaches a method for roughening the surface of a solar cell. Inomata teaches placing a substrate for a solar cell on an RF electrode in a chamber; placing a plate to cover the substrate while securing a distance from the surface of said substrate, the plate being provided with a number of opening portions. Inomata teaches forming fine textures on a surface of the substrate by using residues being chiefly composed of components of the substrate as an etching mask. Inomata teaches the plate is spaced apart from the surface of the substrate by 5 to 30 mm. Inomata teaches the fine textures are fabricated by a reactive ion etching method.

Inomata does not teach the size of the openings in the plate. Therefore, Inomata does not teach each opening portion being of a size such that allows a virtual column having a diameter equal to or less than half ($1/2$) the distance to pass through the opening portion while inhibiting a virtual column having a diameter greater than half the distance from passing through the opening portion. Inomata does not teach that the bottom corners of the openings in the plate are chamfered.

It would have been obvious to one skilled in the art to provide openings having a diameter of equal to or less than half ($1/2$) the size of the gap between the substrate and plate because Inomata teaches the spacing between the substrate and plate may be as large as 30 mm. As such an opening diameter of 15 mm would satisfy the claim limitation. It would be obvious to use an opening of 15 mm or less because Inomata teaches the plate has many openings that provide an open area ratio of 5% - 40% which would be difficult to achieve if one were to use large apertures.

It would have been obvious to one skilled in the art to use a plate in which the top and/or bottom corners of the openings were chamfered in order to promote uniformity as this permits more ions to reach the substrate without being hindered by the plate.

Response to Arguments

Applicant's arguments, see pages 10-14, filed February 7, 2008, have been fully considered and are persuasive especially in view of the fact that the references are not directed to the production of solar cells. Therefore, the previous rejections have been withdrawn.

Allowable Subject Matter

Claims 1-421-29 and 32 are allowed as the closest prior art, Inomata, teaches the plate should have uniform distribution of openings across the plate to achieve process uniformity.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Allan Olsen/
Primary Examiner, Art Unit 1792